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EXAMINER	
RIVARD, CHRISTOPHER P	

ART UNIT	PAPER NUMBER
4154	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,117	SALMON, NEIL ANTHONY	
	Examiner	Art Unit	
	Christopher P. Rivard	4154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/26/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6 and 9-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6 and 9-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/26/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Computer translated portion of EP0179687*.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract includes the legal phraseology such “comprises” in the first and second lines of the abstract. Appropriate correction to exclude this legal terminology is required.

The disclosure is objected to because of the following informalities: line 8 of page 6 refers to the polarization of radiation 222c, where the examiner believes it is intended to refer to the polarization of radiation 222c'. Additionally, line 14 of page 6 refers to radiation 222f being reflected back through element 214 to produce radiation 222g, where the examiner believes it was intended to refer to the radiation being reflected through element 216. Appropriate correction is required.

A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because of missing text at the bottom of pages 4,6, and 7.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 6, 10, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, claim 4 recites the limitation that it is dependent on the cancelled claim 2 in line 1. There is insufficient antecedent basis for this limitation in the claim. For examination purposes, claim 4 is assumed to be dependent on claim 1.

Regarding claim 6, claim 6 recites the limitation "in the focal plane" in line 2. There is insufficient antecedent basis for this limitation in the claim. The examiner interprets this phrase to mean the plane formed by the receiver elements.

Regarding claim 10, claim 10 recites the limitation "in the focal plane" in line 2. There is insufficient antecedent basis for this limitation in the claim. The examiner interprets this phrase to mean the plane formed by the receiver elements.

Regarding claim 17, claim 17 recites the limitation "the first polarizing element" in line 3. There is insufficient antecedent basis for this limitation in the claim. For examination purposes, "the first polarizing element" will be considered "a first polarizing element."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 14, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Levaillant et alia (U.S. Patent No. 5,512,741).

Regarding claim 1, the Levaillant et alia device anticipates claim 1 because it comprises a scanning means (figure 2, prisms 7 and 20, and corresponding rotating supports 8 and 21), focusing means (figure 2, converging lens 2), and a plurality of receiver elements (figure 2, photodetectors 1), wherein focusing means (figure 2, 2) is physically interposed (see figure 2) between the scanning means (figure 2, 7, 20, 8 and 21) and the receiver elements (figure 2, 1), the scanning means comprising 2 rotatable prisms (prism 7 is rotating according to column 3, lines 60-65, and prism 20 is rotating according to column 4, lines 37-40) arranged to scan radiation from a field of view (see figures 6a-6e, which detail how the ray lines from different regions of the field of view enter 7) onto said focusing means (see figure 2, in which ray lines pass from 7 through 20 onto 2) such that focused radiation from a region of the field of view is incident upon at least one of the plurality of receiver elements (see figures 6a-6e, which illustrate ray lines passing from 2 onto 1 from different regions of view).

The applicant's recitation of the claimed apparatus being a millimeter wave imaging device has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded patentable weight where it merely recites the purpose of a

process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding claim 14, the Levaillant et alia device anticipates claim 14 because, as above, it is an apparatus according to claim 1, wherein the plurality of receiver elements (figure 2, 1) are arranged in a linear array (column 3, lines 55-56), curvilinear array, or sparse two dimensional array.

Regarding claim 19, the Levaillant et alia device anticipates claim 19 because, as above, it is an apparatus according to claim 1, wherein the scanning means (figure 2, 7 and 20), which is arranged to define an entrance pupil of the apparatus, (figure 2, 7 and 20 are centered on axis ZZ' in the center of the apparatus and are in front of the focusing, 2, and receiver, 1, elements.) is placed at the effective centre of curvature (figure 2, 7 and 20 are centered along the ZZ' axis; "the azimuth axis ZZ' (is) coincident with the optical axis of the lens", column 4, lines 13-14) of the focusing means (figure 2, 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 6, 9-10, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the millimeter-wave imager disclosed in the Proc. SPIE article (1999) "Compact real-time (video rate) passive millimeter-wave imager" by Appleby et alia in view of Raber et alia (U.S. Patent No. 4,791,427).

Regarding claim 1, Appleby et alia disclose a millimeter-wave imager comprising scanning means ("an offset rotating disc scanner", page 14, paragraph 2), a focusing means ("a converging mirror and plane mirror made of polarizing grids, a large-area, free space Faraday rotator", page 14, paragraph 2), and a plurality of receiver elements ("a 32-channel receiver array", page 14, paragraph 2), the focusing means being physically interposed between the scanning means and the receiver elements (See figure 1, page 14, where the three focusing elements are in between the receiver array and the rotating mirror).

Appleby fails to disclose the scanning means as comprising two rotatable prisms and arranged as proposed.

Raber et alia disclose a multimode, multispectral antenna with active millimeter radar feeds and an IR detector wherein the scanning means comprises two rotatable prisms (figure 1, 21; additionally, this configuration will be referred to as a Risley prism pair) arranged to scan radiation from a field of view onto a focusing means (figure 1, "collimating lens" 35 and "focusing system" 54) such that focused radiation for a region of the field of view is incident upon at least one of the plurality of receiver elements (antennas 12,13 and IR or video detector 51) (column 3, lines 52-54).

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the offset scanning mirror in the device disclosed by Appleby et alia with the Risley

prism pair disclosed by Raber et alia and configure the assembly of Appleby et alia such that the Risley prism pair is in the front of the device and the receiver array is in the rear of the device. The motivation for the Risley prism pair replacing the rotating mirror is that not only does the Risley prism pair allow "the scanning or direction of beams of radiation in specific predetermined or preselected directions, without reliance on cumbersome, complicated, and expensive mechanical arrangements…" (column 3, lines 61-65) , similar to the rotating mirror, but the Risley prism pair additionally allows these scanning directions to be a variety of patterns (column 5, lines 5-32), whereas the offset rotatable mirror is limited by simple geometry to conical sections (and the arcs thereof). Implementing the millimeter wave imager disclosed by Appleby et alia with the Risley prism pair disclosed by Raber et alia instead of the rotating mirror also necessitates the placement of the scanning means in front of the device due to the fact that the Risley prism pair scans by mean of refraction instead of reflection.

Regarding claim 3, Appleby et alia as modified by Raber et alia disclose the embodiment wherein each rotating prism in the scanning mechanism is a wedge prism (Raber: figure 1, 21' and 21"), where the inventions of Appleby, et alia, and Raber, et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claims 6 and 10, Appleby et alia does not disclose prisms arranged to produce a circular scan path in the focal plane. Raber et alia does disclose that a scanning means consisting of two rotatable prisms (figure 1, 21) can establish a circular scan path ("conical beam sweep," column 5, lines 26-28) in the focal plane ("selected target regions," column 3, lines 52-54). A scanning means capable of establishing a circular scan path also establishes an elliptical scan path, as circles are ellipses.

It would have been obvious to one of ordinary skill in the art at the time of the invention to configure the Appleby et alia imager modified by Raber et alia by the implementation of a Risley prism pair as a scanning means such that it may produce circular and elliptical beam sweep. One would be motivated to implement the Risley prism pair as a scanning means in the imager disclosed by Appleby et alia for the reasons given above such as avoidance of disadvantageous mechanical arrangements and an increase in available scanning patterns.

Regarding claim 9, Appleby et alia as modified by Raber et alia disclose an imager configured such that the prisms can be arranged to rotate in opposite directions to each other (Raber: column 5, lines 29-32), where the inventions of Appleby, et alia, and Raber, et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 14, Appleby et alia disclose a plurality of receiver elements arranged in a linear array made of 16 horizontally arranged feed horns on an aluminum baseplate (page 17, paragraph 2), where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 15, Appleby et alia disclose a focusing means wherein said focusing means is a reflector lens (page 14, figure 1 shows a reflector lens system consisting of a plane mirror and converging mirror, and page 14, paragraph 5 details an imager where radiation from the scanner reflects between the plane mirror and the converging mirror to achieve focusing), where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 16, Appleby et alia disclose that the reflector lens comprises a first polarizing element (page 14, paragraph 2 states that the converging mirror (the first element

radiation from the scanner passes through) is made of a polarizing grid), where the inventions of Appleby, et alia, and Raber, et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 17, Appleby et alia disclose that the reflector lens comprises a second polarizing element (page 14, paragraph 2 states that the planar mirror is made of a polarizing grid) arranged to reflect radiation transmitted by the first polarizing element (page 14, figure 1 has a ray diagram that demonstrates that the planar grid mirror reflects radiation that passed through the converging grid mirror from the scanner), where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 18, Appleby et alia disclose that the reflector lens comprises a polarization element (page 16, paragraph 1 states there is a ferrite Faraday rotator in the reflector lens system to rotate the plane of polarization), where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1.

Regarding claim 19, Appleby et alia as modified by Raber et alia disclose that the scanning means (Raber: figure 1, 21) is placed at the effective center of curvature of the focusing means (Raber: figure 1, the axis 99 is what prisms 21' and 21" rotate about according to column 3, lines 54-58, and axis 99 also lies at the center of curvature). Additionally, the apparatus where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1 has the Risley prism pair in the front of the device, which means that the Risley prism pair acts as an entrance pupil to the apparatus.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the millimeter-wave imager disclosed in the Proc. SPIE article (1999) "Compact real-time (video rate) passive millimeter-wave imager" by Appleby et alia in view of Raber et alia (US '427) as applied to claim 1, 3, 6, 9-10, and 15-19 above, and further in view of Commault et alia (EP 179687 A1 (1986)).

Appleby et alia in view of Raber et alia discloses the apparatus of claim 1, but does not disclose the limitation wherein the rotating prisms are of uniform thickness and varying refractive index across a cross-section thereof.

Commault et alia discloses an antenna with a scanning means of a Risley prism pair (figure 1, 21 and 22), where the wedge prisms can be replaced with prisms of uniform thickness (figures 13a and13b) and varying refractive index across the cross-section thereof (in figures 13a and 13b, zones 21 and 22 have the same index of refraction that the wedge prism would have, and zones 72, 73, 74, and 75 have an index of refraction in the neighborhood of air). Commault et alia teaches that an advantage of their design is that it avoids the impact of aerodynamic turbulence (based on the appended machine translation of page 12, lines 27-28), in this case caused by the high RPM of the wedge prisms.

It would be obvious to one of ordinary skill in the art to replace the wedge prisms in the apparatus where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1, with the prisms of uniform thickness and varying index of refraction across the cross-section disclosed by Commault et alia for the

reason of limiting the effects of aero-dynamic turbulence, as taught by Commault et alia, caused by the rotating prisms.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the millimeter-wave imager disclosed in the Proc. SPIE article (1999) "Compact real-time (video rate) passive millimeter-wave imager" by Appleby et alia in view of Raber et alia (US '427) as applied to claim 1, 3, 6, 9-10, and 15-19 above, and further in view of Salmon (WO 206945 A1 (2002)), and SPIE Vol. 1540 Infrared Technology VVII (pages 653-654) article (1991) "The effects of microscan operation on staring infrared sensor imagery" by Blommel et alia.

Regarding claim 11, Appleby et alia in view of Raber et alia disclose the apparatus of claim 1, as well as the elliptical scan path of claim 10, but does not disclose the limitation wherein the elliptical scan path has a minor diameter that approximately corresponds to the spacing between adjacent receiver elements in an array.

Salmon discloses a method of calibrating radiometers, including "real time passive mm wave imagers" (column 1, lines 3-5). Particularly, it discloses a method of relative calibration between (but not limited to) adjacent channels using microscan (column 41, lines 9-15). It states that relative calibration can be used between channels at points where their conical scans overlap (column 35, lines 14-16). It does not disclose the use of elliptical scans with minor diameters equal to the pitch of the detectors or the use of only one crossover point.

Blommel et alia establishes that microscan has a tradeoff between sampling rate and sensitivity or integration time available to individual detectors (page 664, paragraph 4), which provides a motivation that is well-known in the pertinent art to have the elliptical scan paths only

overlap once, rather than multiple times. Having elliptical scan paths of adjacent channels overlap only once results in the minor diameter of the ellipse corresponding to the spacing between receiver elements.

It would have been obvious to one of ordinary skill at the at the time of the invention to use the relative calibration method disclosed in Salmon with the apparatus where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1 because this relative calibration method compensates for temperature fluctuation and provides this compensation with few moving parts and without adding to the mass or size of the device (column 3, lines 22-27).

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify this method of relative calibration for conical scans with circles that overlap with multiple circles at two points per circle (figure 5A) to the same method of relative calibration for conical scans with ellipses that only overlap with one other ellipse at one point along their mutual minor diameters (hence requiring that said minor diameters be equivalent to the pitch of the detectors) for the motivation that microscan methods involve an established trade-off between sampling rate and available detector integration time per field (page 655, paragraph 1). Such a change decreasing the overlaps between channels would increase the available detector integration time per field thereby increasing the sensitivity of the array (page 664, paragraph 4). Configuration of a Risley prism pair to create ellipses from a conical scan is well known in the art, and the geometrical knowledge that two equal-sized circles or ellipses in a plane can intersect at 0, 1, or 2 points in said plane is also well known in the pertinent art.

Regarding claim 12, Appleby et alia in view of Raber et alia disclose the apparatus of claim 1, as well as the elliptical scan path of claim 10, but does not disclose the limitation wherein the elliptical scan path has a major diameter that approximately corresponds to the spacing between adjacent receiver elements in an array.

Salmon discloses a method of calibrating radiometers, including "real time passive mm wave imagers" (column 1, lines 3-5). Particularly, it discloses a method of relative calibration between (but not limited to) adjacent channels using microscan (column 41, lines 9-15). It states that relative calibration can be used between channels at points where their conical scans overlap (column 35, lines 14-16), and further extends this to in between the upper and lower rows of two dimensional arrays (figure 7, and column 38, lines 14-18). It does not disclose the use of elliptical scans with major diameters equal to the spacing between the rows of the detectors or the use of only one crossover point.

Blommel et alia establishes that microscan has a tradeoff between sampling rate and sensitivity or integration time available to individual detectors (page 664, paragraph 4), which provides a motivation that is well-known in the pertinent art to have the elliptical scan paths only overlap once, rather than multiple times. Having elliptical scan paths of adjacent channels in separate rows overlap only once results in the major diameter of the ellipse corresponding to the spacing between receiver elements.

It would have been obvious to one of ordinary skill at the at the time of the invention to use the relative calibration method disclosed in Salmon with the apparatus where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1 because this relative calibration method compensates for temperature

fluctuation and provides this compensation with few moving parts and without adding to the mass or size of the device (column 3, lines 22-27).

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify this method of relative calibration for conical scans with circles that overlap with multiple circles at two points per circle (figure 5A) to the same method of relative calibration for conical scans with ellipses that only overlap with one other ellipse at one point along their mutual major diameters (hence requiring that said major diameters be equivalent to the spacing between the rows of the detectors). Such a change decreases the overlaps between channels would increase the available detector integration time per field thereby increasing the sensitivity of the array (page 664, paragraph 4). Configuration of a Risley prism pair to create ellipses from a conical scan is well known in the art, and the geometrical knowledge that two equal-sized circles or ellipses in a plane can intersect at 0, 1, or 2 points in said plane is also well known in the pertinent art.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the millimeter-wave imager disclosed in the Proc. SPIE article (1999) "Compact real-time (video rate) passive millimeter-wave imager" by Appleby et alia in view of Raber et alia (US '427) as applied to claim 1, 3, 6, 9-10, and 15-19 above, and further in view of US Patent 5,047,783 with inventor Hugenin.

Appleby et alia as modified by Raber et alia discloses the limitations of claim 1, as shown above, but fails to disclose the rotation rate of the prisms.

Hugenin discloses a rotating wedge prism in a millimeter-wave imaging system (figure 1, 107 and column 8, lines 51-56) capable of rotating at a rate of 30 Hz (column 11, lines 18-20). This establishes that there are motors in that are well known in the pertinent art capable of rotating the prisms in a Risley prism pair at a rate of at least 25 Hz.

It would have been obvious to one of ordinary skill in the art at the time of the invention to rotate the wedge prisms in the apparatus where the inventions of Appleby et alia, and Raber et alia are combined in the manner and for the reasons discussed in the rejection of claim 1 at a rate of at least 25 Hz for the purpose taught by Hugenin of synchronizing the imager with television rates (column 11, lines 14-17) which Hugenin states are 30 image frames per second (column 11, lines 17-18), thereby allowing video capability.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Marshall, “Risley Prism Scan Patterns," Proceedings of SPIE (July 1999), Volume 3787, pages 74-86 discloses the variety of scan patterns available to the Risley prism pair, as well as the necessary configurations to obtain these scan patterns.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Anderton et alia, “Real Time Passive mm-wave Imaging,” Proceedings of SPIE (April 1998), Volume 3378, pages 27-33 discloses issues and solutions pertaining to the design and development of mm-wave imagers, namely the use of microscan and sparse detector arrays.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Rivard whose telephone number is (571)270-7920. The examiner can normally be reached on Monday-Thursday from 7:30-12:00 and 12:30-5:00, and alternate Fridays from 7:30-12:00 and 12:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook (Robyn) Ham can be reached on (571)272-2405. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CPR

/Michael H. Caley/
Primary Examiner